

We claim:

1. A transfer mechanism for transferring a load between a first upper conveyor and a second lower conveyor, comprising:

5 first and second spaced, generally parallel rails having first ends pivotably mounted to the upper conveyor and opposite second ends, the rails movable between a first position wherein the rails are generally co-planer with the upper conveyor and a second position wherein the rails extend from the upper conveyor at a predetermined angle; and

10 a transfer conveyor having a first end pivotably mounted to the second ends of the rails and a second opposite end, the transfer conveyor movable between a first position wherein the transfer conveyor is generally co-planer with the rails and a second position wherein the transfer conveyor is at a predetermined angle to the rails such that transfer conveyor is generally co-planer with the lower conveyor when the rails and the transfer conveyor are in the second positions.

20 2. The transfer mechanism of claim 1 further comprising a rail locking mechanism movable between a lock position for locking the rails in the first position and a release position for allowing the rails to pivot between the first and second positions.

25 3. The transfer mechanism of claim 1 further comprising a transfer conveyor locking mechanism movable between a lock position for locking the transfer conveyor in the first position and a release position for allowing the transfer conveyor to pivot between the first and second positions.

30 4. The transfer mechanism of claim 1 further comprising a counterweight operatively connected to at least one of the rails for urging the rails towards the first position.

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5. The transfer mechanism of claim 1 further comprising a counterweight operatively connected to the transfer conveyor for urging the transfer conveyor towards the first position.

5 6. The transfer mechanism of claim 1 further comprising a dampening mechanism operatively connected to at least one of the rails for controlling the rate of movement of the rails between the first and the second positions.

10 7. The transfer mechanism of claim 1 further comprising a load restraining mechanism operatively connected to the upper conveyor, the load restraining mechanism movable between a first position for retaining the load on the upper conveyor and a second position for allowing the load to be axially slid between the rails.

15 8. The transfer mechanism of claim 1 wherein the transfer conveyor includes a load stopping member projecting from the second end thereof, the load stopping member preventing the load from sliding axially off the transfer conveyor.

20 9. The transfer mechanism of claim 1 wherein the transfer conveyor includes a plurality of rollers extending in a direction generally perpendicular to the rails, the rollers facilitating the positioning of the load onto and off of the transfer conveyor.

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10. A transfer mechanism for transferring a load between an upper conveyor extending along a first axis and a lower conveyor extending along a second axis, vertically displaced from the first axis, the transfer mechanism comprising:

5 a support member having a first end adjacent to and pivotably mounted to the upper conveyor and an opposite second end, the support member movable between a first position wherein the support member is generally parallel to the first axis and a second position wherein the support member is at a predetermined angle to the first axis; and

10 a transfer deck having a first end pivotably mounted to the second end of the support member and a second opposite end, the transfer deck movable between a first position wherein the transfer deck is co-planar with the support member and a second position wherein the transfer deck is at a predetermined angle to the support member.

15 11. The transfer mechanism of claim 10 wherein the transfer deck extends generally along the second axis when the support member and the transfer deck are in the second positions.

20 12. The transfer mechanism of claim 10 further comprising:

a support member locking mechanism movable between a lock position for locking the support member in the first position and a release position for allowing the support member to pivot between the first and second positions; and

25 a transfer deck locking mechanism movable between a lock position for locking the transfer deck in the first position and a release position for allowing the transfer deck to pivot between the first and second positions.

13. The transfer mechanism of claim 12 further comprising a support member locking mechanism biasing element for urging the support member locking mechanism towards the lock position; and a transfer deck locking mechanism biasing element for urging the transfer deck locking mechanism towards the lock position.

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14. The transfer mechanism of claim 10 further comprising:

a first counterweight operatively connected to the support member for urging the support member towards the first position; and

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a second counterweight operatively connected to the transfer deck for urging the transfer deck towards the first position.

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15. The transfer mechanism of claim 10 further comprising a dampening mechanism operatively connected to the support member for controlling the rate of movement of the support member between the first and the second positions.

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16. The transfer mechanism of claim 10 further comprising a load restraining mechanism operatively connected to the upper conveyor, the load restraining mechanism movable between a first position for retaining the load on the upper conveyor and a second position for allowing the load to be axially slid adjacent the support member.

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17. A transfer mechanism for transferring a load between an upper conveyor extending along a first axis and a lower conveyor extending along a second axis, vertically displaced from the first axis, the transfer mechanism comprising:

5 first and second spaced, generally parallel rails having first ends adjacent to and pivotably mounted to the upper conveyor and opposite second ends, the rails movable between a first position wherein the rails are generally parallel to the first axis and a second position wherein the rails are at a predetermined angle to the first axis;

10 a rail locking mechanism movable between a lock position for locking the rails in the first position and a release position for allowing the rails to pivot between the first and second positions;

15 a first counterweight operatively connected to at least one of the rails for urging the rails towards the first position;

20 a transfer deck having a first end pivotably mounted to the second ends of the rails and a second opposite end, the transfer deck movable between a first position wherein the transfer deck is disposed between the rails and a second position wherein the transfer deck is at a predetermined angle to the rails;

25 a transfer deck locking mechanism movable between a lock position for locking the transfer deck in the first position and a release position for allowing the transfer deck to pivot between the first and second positions; and

a second counterweight operatively connected to the transfer deck for urging the transfer deck towards the first position.

18. The transfer mechanism of claim 17 wherein the transfer deck intersects  
30 the second axis when the rails and the transfer deck are in the second positions.

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19. The transfer mechanism of claim 17 further comprising a dampening mechanism operatively connected to at least one of the rails for controlling the rate of movement of the rails between the first and the second positions.

5           20. The transfer mechanism of claim 17 further comprising a load restraining mechanism operatively connected to the upper conveyor, the load restraining mechanism movable between a first position for retaining the load on the upper conveyor and a second position for allowing the load to be axially slid between the rails.

10           21. The transfer mechanism of claim 17 further comprising a rail locking mechanism biasing element for urging the rail locking mechanism towards the lock position; and a transfer deck locking mechanism biasing element for urging the transfer deck locking mechanism towards the lock position.

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